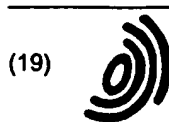


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(30) Priority: 28.06.1999 JP 18259899

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(54) Method of manufacturing an electro-optical device

(57) An object of the invention is to reduce the manufacturing cost of EL display devices and electronic devices incorporating the EL display devices.

An EL material is formed by printing in an active ma-

trix EL display device. Relief printing or screen printing may be used as the method of printing. Manufacturing steps of the EL layer is therefore simplified and reduction of manufacturing cost is devised.

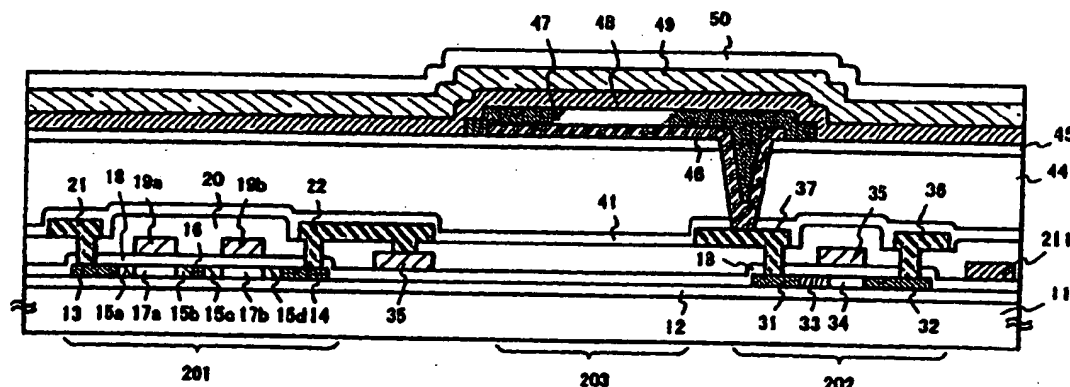


Fig. 2

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## EUROPEAN SEARCH REPORT

Application Number  
EP 00 11 3587

| DOCUMENTS CONSIDERED TO BE RELEVANT   |  |   |   |
|---|--|---|---|
| Category  | Citation of document with indication, where appropriate, of relevant passages  | Relevant to claim                                       | CLASSIFICATION OF THE APPLICATION (Int.Cl.7)    |
| X   | EP 0 901 174 A (SUMITOMO CHEMICAL CO)<br>10 March 1999 (1999-03-10)<br>* page 10, paragraphs 72-74 *<br>* page 11, paragraphs 79-82 *  | 1, 6, 7, 9,<br>11, 13, 14                               | H01L27/15<br>H01L51/20                          |
| Y   |  | 8, 12, 15,<br>16  |   |
| Y   | US 5 821 003 A (KIMURA HIROYA ET AL)<br>13 October 1998 (1998-10-13)<br>* column 6, line 61-65 *   | 8, 15   |   |
| X   | EP 0 880 303 A (SEIKO EPSON CORP)<br>25 November 1998 (1998-11-25)<br>* page 10, line 52-58 *<br>* page 11, line 1-18 *<br>* page 13, line 10-19 *<br>* page 14, line 17-19 *<br>* page 5, line 6-18 *<br>* page 6, line 11-13 * | 1-7, 10   |   |
| Y   |  | 12, 16  |   |
| P, X  | EP 0 954 205 A (SONY CORP)<br>3 November 1999 (1999-11-03)<br>* page 3, paragraph 17 *<br>* page 4, paragraphs 21, 23, 32 *<br>* page 5, paragraph 37 *<br>* page 7, paragraph 51 *  | 1, 6-9,<br>11, 13-15                                    | TECHNICAL FIELDS<br>SEARCHED (Int.Cl.7)<br>H01L |
| X   | PATENT ABSTRACTS OF JAPAN<br>vol. 016, no. 084 (E-1172),<br>28 February 1992 (1992-02-28)<br>& JP 03 269995 A (RICOH CO LTD),<br>2 December 1991 (1991-12-02)<br>* abstract *  | 1, 6, 7   |   |
| -/-   |  |   |   |
| The present search report has been drawn up for all claims  |  |   |   |
| Place of search<br><b>THE HAGUE</b>   |  | Date of completion of the search<br><b>3 March 2004</b> | Examiner<br><b>Faou, M</b>                      |
| <b>CATEGORY OF CITED DOCUMENTS</b><br>X : particularly relevant if taken alone<br>Y : particularly relevant if combined with another document of the same category<br>A : technological background<br>O : non-written disclosure<br>P : intermediate document<br>T : theory or principle underlying the invention<br>E : earlier patent document, but published on, or after the filing date<br>D : document cited in the application<br>I : document cited for other reasons<br>& : member of the same patent family, corresponding document |  |   |   |

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# EUROPEAN SEARCH REPORT

Application Number  
EP 00 11 3587

| DOCUMENTS CONSIDERED TO BE RELEVANT  |   |   |  |
|--|---|---|--|
| Category   | Citation of document with indication, where appropriate, of relevant passages   | Relevant to claim                                       | CLASSIFICATION OF THE APPLICATION (Int.Cl.7) |
| X  | PATENT ABSTRACTS OF JAPAN<br>vol. 1998, no. 08,<br>30 June 1998 (1998-06-30)<br>-& JP 10 077467 A (SUMITOMO CHEM CO LTD),<br>24 March 1998 (1998-03-24)<br>* abstract *<br>* figure 1 * | 1,6,7   |  |
|  |   |   | TECHNICAL FIELDS SEARCHED (Int.Cl.7)         |
|  |   |   |  |
| The present search report has been drawn up for all claims   |   |   |  |
| Place of search<br><b>THE HAGUE</b>  |   | Date of completion of the search<br><b>3 March 2004</b> | Examiner<br><b>Faou, M</b>                   |
| CATEGORY OF CITED DOCUMENTS<br>X : particularly relevant if taken alone<br>Y : particularly relevant if combined with another document of the same category<br>A : technological background<br>O : non-written disclosure<br>P : intermediate document<br>T : theory or principle underlying the invention<br>E : earlier patent document, but published on, or after the filing date<br>D : document cited in the application<br>L : document cited for other reasons<br>& : member of the same patent family, corresponding document |   |   |  |

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**ANNEX TO THE EUROPEAN SEARCH REPORT  
ON EUROPEAN PATENT APPLICATION NO.**

EP 00 11 3587

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on  
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03-03-2004

| Patent document<br>cited in search report | Publication<br>date | Patent family<br>member(s) | Publication<br>date |
|---|---------------------|----------------------------|---------------------|
| EP 0901174 A                              | 10-03-1999          | EP 0901174 A2              | 10-03-1999          |
|   |                     | JP 11176576 A              | 02-07-1999          |
|   |                     | US 6403236 B1              | 11-06-2002          |
| US 5821003 A                              | 13-10-1998          | CA 2163010 A1              | 21-09-1995          |
|   |                     | EP 0702075 A1              | 20-03-1996          |
|   |                     | WO 9525149 A1              | 21-09-1995          |
|   |                     | KR 246496 B1               | 01-04-2000          |
|   |                     | TW 406199 B                | 21-09-2000          |
| EP 0880303 A                              | 25-11-1998          | JP 10153967 A              | 09-06-1998          |
|   |                     | DE 69727212 D1             | 19-02-2004          |
|   |                     | EP 0880303 A1              | 25-11-1998          |
|   |                     | CN 1212114 A ,C            | 24-03-1999          |
|   |                     | EP 1211916 A1              | 05-06-2002          |
|   |                     | EP 1376716 A2              | 02-01-2004          |
|   |                     | EP 1376717 A2              | 02-01-2004          |
|   |                     | WO 9824271 A1              | 04-06-1998          |
|   |                     | US 2003054186 A1           | 20-03-2003          |
|   |                     | US 2002155215 A1           | 24-10-2002          |
|   |                     | US 2001001050 A1           | 10-05-2001          |
|   |                     | US 2002136823 A1           | 26-09-2002          |
|   |                     | US 2002041926 A1           | 11-04-2002          |
| EP 0954205 A                              | 03-11-1999          | JP 11273859 A              | 08-10-1999          |
|   |                     | EP 0954205 A2              | 03-11-1999          |
| JP 03269995 A                             | 02-12-1991          | NONE                       |                     |
| JP 10077467 A                             | 24-03-1998          | NONE                       |                     |

EPO FORM P419

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

(19)



Europäisches Patentamt

European Patent Office

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(11)

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(12)

## EUROPÄISCHE PATENTANMELDUNG

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(21) Anmeldenummer: 99123432.9

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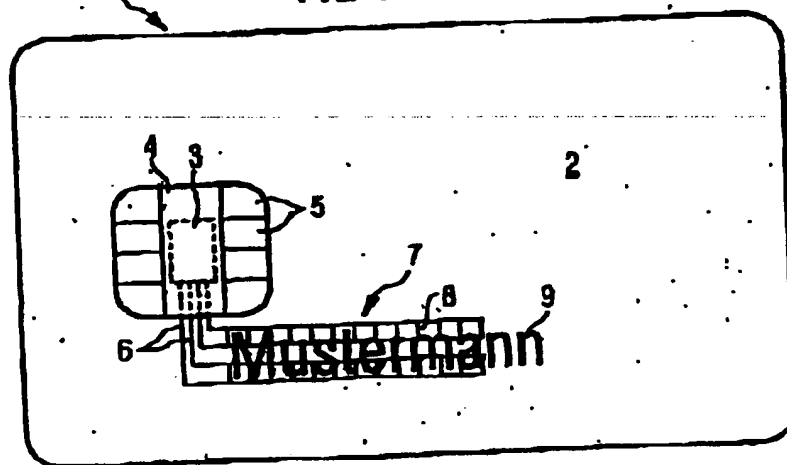
(84) Benannte Vertragsstaaten:  
AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU  
MO NL PT SE  
Benannte Erstattungsstaaten:  
AL LT LV MK RO SI(72) Erfinder: Walter, Georg  
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## (54) Chipkarte

(57) Die Erfindung betrifft eine Chipkarte mit einem externen Zusatz-Schaltkreis, ein Verfahren zur Aufbringung des Zusatz-Schaltkreises auf einer Chipkarte sowie ein Verfahren zur Verwendung des Zusatz-Schaltkreises beim Betrieb der Chipkarte. Bisherige Chipkarten erfüllen nicht hinreichend den Wunsch nach Sicherheit und Flexibilität. Die Erfindung stellt daher eine verbesserte Chipkarte zur Verfügung, die aufweist eine Trägerkarte (2) mit einer Oberfläche; und einem an der Trägerkarte angeordneten (2), integrierten Schaltkreis (3); wobei diese Chipkarte (1) gekennzeichnet ist durch zumindest einen auf der Oberfläche der Trägerkarte (2)

angeordnete Zusatz-Schaltkreis (7), der mit dem integrierten Schaltkreis (3) in elektrischer Verbindung steht und von dem integrierten Schaltkreis (3) lesbare Informationen enthält. Die lesbaren Informationen können ein Muster im Zusatz-Schaltkreis oder ein Programmcode sein. Das Muster kann der Laserbeschriftung der Chipkarte während der Laserbeschriftung der Chipkarte eingebrannt werden. Der Programmcode kann in einem ROM des Zusatz-Speichers (7) gespeichert sein. Vorzugsweise wird der Zusatz-Schaltkreis (7) in Polymertechnologie mit Polymertransistoren implementiert, da diese sich einfach aufdrucken lässt.

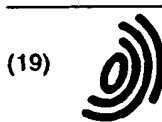
FIG 1



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(86) International application number:  
PCT/JP00/06569

(22) Date of filing: 25.09.2000

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(72) Inventor: HAMADA, Shiro,  
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(30) Priority: 28.09.1999 JP 27407999

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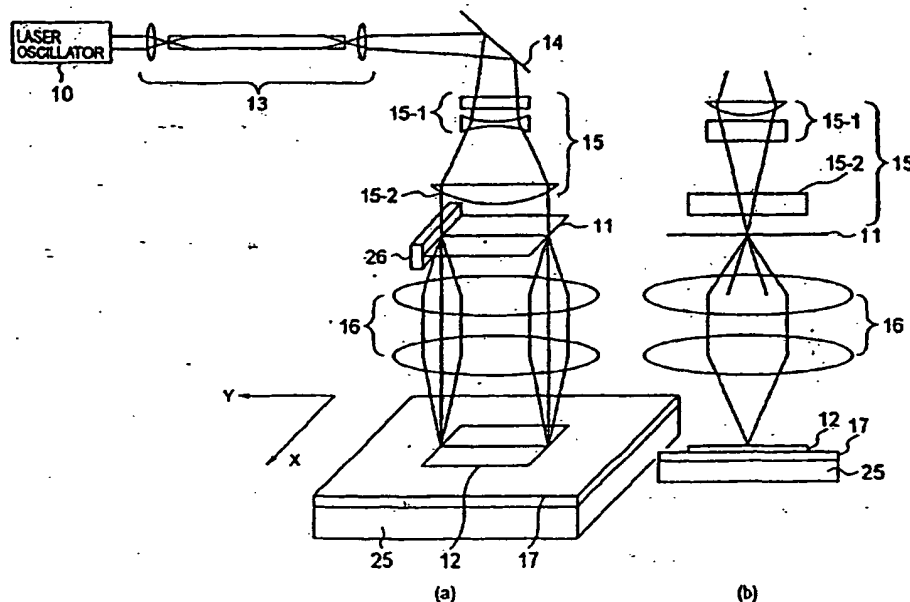
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## (54) LASER DRILLING METHOD AND LASER DRILLING DEVICE

(57) It is provided with a homogeneous optical system 13 for transforming laser light from a laser oscillator 10 into laser light having a linear cross-section and a drive mechanism for synchronously moving a mask 11 and a printed circuit board 12, an irradiation position of the linear laser light being fixed, the drive mechanism

moving the mask and the workpiece so that the mask passes through the irradiation position of the laser light while the moving direction thereof is perpendicular to the extending direction of the linear laser light so that the mask is scanned by the linear laser light, the drilling defined by the mask pattern thereby being carried out to the workpiece.

FIG. 1



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